

Intermountain Flora: Vascular Plants of the Intermountain West, U. S. A. Volume I. By ARTHUR CRONQUIST, ARTHUR H. HOLMGREN, NOEL H. HOLMGREN and JAMES L. REVEAL. Frontispiece, 270 pp., 102 numbered figures, 81 line drawings. Hafner Publishing Co., Inc., New York and London. 1972. \$17.50.

This is the first volume of a projected six-volume work designed to provide the first illustrated flora of a vast dry-land region covering the Great Basin Floristic Province including all of Utah, most of Nevada, large parts of Oregon and Idaho and smaller sections of Wyoming, Arizona, and California. And although this is not part of their claim, the books will provide an effective illustrated flora of the western half of Colorado as well, a bonus for which West-slope educators and amateurs will be most grateful.

The designers of the Intermountain Flora project have had over thirty years to mature its format and to mark and guard against the mistakes and errors of omission and commission of all of its sibs. That they chose to adopt the multi-volume bookshelf, 8 x 10 $\frac{3}{4}$ " , slick-paper format may disappoint those who were hoping for a portable field-guide, but one has to admit that the product is magnificent. This more affluent production invites comparison with the recent *Vascular Plants of the Pacific Northwest*. In *Intermountain Flora*, a return to letterpress makes possible the compression into 89 pages of the same amount of material that occupies 133 pages in the other. The binding problem, which was literally the "undoing" of VPPNW, seems to have been corrected with a sturdy product in a pleasing russet "canyonlands" color. The choice of the recently-segregated *Pinus longaeva* for the cover and frontispiece may reflect the hopes of the authors for a book that will stand the test of time in many ways.

An introductory chapter gives the background and rationale of the work, with portraits of the authors. This is followed by four chapters on Physiography, Evolution of Floras (mostly fossil), Botanical Exploration, and Plant Geography (Floristic divisions, and Vegetation Zones). The first two chapters were contributed by W. D. Tidwell, S. R. Rushforth and D. Simper. The remaining chapters, as well as the short taxonomic section, covering the vascular cryptogams and gymnosperms, are unsigned. In most cases, the editorial "we" or "our" has been used, but the text lapses on page 193 into the first person singular in the discussion of the classification of the ferns, leading one to wonder which of the authors is speaking.

The line drawings by Jeanne Janish and her colleagues leave nothing to be desired; from gross habit to fine detail they are impeccable. Only a few minor errors occur. The captions under *Woodsia scopulina* and *W. oregana* (p. 219) should be transposed, and the plate caption (p. 225) misspells *Picea engelmannii*. Rather than restrict the illustrations to full pages, the format allows for them to share space with the text, making it possible to place illustrations close to the text reference. The taxonomic treatment provides invaluable references under the genus providing access to the source of more detailed literature, a practice that has been of immense value in Kearney & Peebles' *Arizona Flora*.

The chapter on taxonomic concepts leaves a good deal to be desired in explaining the use of the categories "subspecies" and "variety". Since the chapter was evidently created, like the legendary camel, by a committee, this is understandable. It does not help to sweep legitimate controversy under the rug by calling the variety the "ordinary" infraspecific category and the subspecies the "intercalary unit" between the species and variety. It is just as legitimate to call the subspecies the "ordinary" unit inasmuch as the categories have been used interchangeably for the major subsets of the species, especially those having geographic parameters. At any rate, to invent an oversimplified pragmatic definition of these categories and to ignore the serious discussions in the literature does nothing to resolve a very real problem concerning the use of trinomials in botanical nomenclature.

Volume I, with the omission of the very short taxonomic treatment, can stand on its own feet as a self-contained essay on the Intermountain Flora. It is very unfortunate that the publishers have "chained" this introduction to the subsequent

volumes. A larger printing of Volume I might have reached countless readers in schools and in ancillary fields who might have been led to purchase the entire set. This would have been a distinct contribution to education of the lay public, who in many instances will have no desire or funds to purchase the whole flora, but to whom we have an obligation to make known our concerns.

The introductory essays still are unfortunately too traditional and static or neglect some of the topics pertinent to the present world ecological crisis that could be well illustrated by the Intermountain region. For example, I miss a chapter on calciphily, gypsophily, selenophily and their relation to floristics, coupled with some report on the extent and impact of geobotanical prospecting methods (which have been carried on in some depth here) on the interdisciplinary aspects of systematic botany.

Utah and Nevada have had a history of drastic and continued overgrazing, but there is no discussion of its impact on the flora although the classic area of the Kaibab Plateau is included within the limits of the treatment. Nor is there any discussion of the history of the adventive flora, nor of the original geographic provenance of its weeds. Here, it seems to me, would be a great opportunity to show how the occurrence of weed species depends not only on the accident of introduction, but upon the selective pressure exerted on adventives by the local environment. The American distribution of Eurasian weed species provides a very sensitive indicator of the similarity of our local climates to those of the areas in which these weeds are indigenous in the Old World.

The volume would have benefited greatly from a full-dress discussion of the phenomenon of narrow endemism in arid areas and regions where isolated mountain ranges, deep river gorges, and great saline lakes provide an unexcelled laboratory for the investigation of evolution through edapho-climatic selection. A chapter discussing the actual and potential impact of reclamation dams and their fluctuating shorelines, of the stripmining of coal from the mesas and subsequent pollutants released by the power plants, and the effects of radioactive and other mining wastes upon the environment and its vegetation would also have been highly desirable.

Despite these drawbacks, the Intermountain Flora is the most ambitious attempt of the century to wed the traditional "taxonomists' flora" with much more interesting background of its history and development. Bassett Maguire is to be congratulated for having conceived the great plan and for having inspired so many capable students to carry through the work to completion. The New York Botanical Garden should be proud of the cooperative venture that it has helped to support. Colorado wishes it might have had the opportunity.—WILLIAM A. WEBER, University of Colorado Museum, Boulder 80302.

Keys to the Families and Genera of Queensland Flowering Plants (Magnoliophyta). By H. T. CLIFFORD and GWEN LUDLOW. 211 pp., illus. University of Queensland Press, St. Lucia, Queensland. 1972. \$9.50. (Available from International Scholarly Book Services Inc., P.O. Box 4347, Portland, OR 97208.)

The title of this small hard-bound volume quite fully describes its sparse contents. The keys to families and to genera seem to be adequate as regards the floral anatomy and general morphology of the taxa included. Because family descriptions based upon Queensland representatives are provided, the family keys offer rather minimal information. Somewhat more morphological information is included in the generic keys in as much as no generic descriptions, nor any other pertinent data, are offered. Thirty-five genera are illustrated by simple line drawings. The aim of